

LITHOGRAPHIC APPARATUS AND DEVICE MANUFACTURING METHOD WITH FEED-FORWARD FOCUS CONTROL

ABSTRACT

The present invention discloses a lithographic apparatus a lithographic apparatus with an improved focus control system. The lithographic apparatus includes an illumination system configured to provide a beam of radiation, a first support structure configured to support a patterning device that imparts the beam of radiation with a desired pattern in its cross-section, a second support structure that includes a substrate holder for holding a substrate, a projection system configured to project the patterned beam of radiation onto a target portion on a surface of the substrate, and a servo unit configured to position the substrate holder. The apparatus further includes a sensor unit configured to determine a distance of at least one location point on the surface of the substrate relative to a reference plane, a memory unit configured to store surface information of the substrate based on respective distances of corresponding the at least one location point on the substrate surface, and a calculating unit configured to determine a feed-forward set-point signal based on the stored surface information, such that the feed-forward set-point signal is forwardly fed to the servo unit in order to position the substrate holder.